PORTABLE COLOR LCD DIGITAL WIRELESS MONITORING SYSTEM

INSTRUCTION MANUAL

English Version 1.0

MODELS:
LW2002 Series

LOREX™

www.lorexcctv.com

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Color may not be exactly as shown. Color varies by model number.

Thank you for purchasing the LW2002 Portable Digital Wireless Monitoring / Surveillance System. Lorex is committed to providing our customers with a high quality, reliable security product.

http://www.lorexcctv.com

Wireless Disclaimer:

This product broadcasts over public airways. Digital Wireless is a secure signal, however video and audio signals *may be* intercepted without your consent.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RICK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the products ‘ enclosure that may be of sufficient magnitude to constitute a risk of electric shock

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF THE PLUG TO THE WIDE SLOT AND FULLY INSERT.

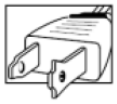
Please visit us on the web for the most current Manuals, Quick Start Guides and Firmware. Additional Language Manuals are also available at:
http://www.lorexcctv.com

Important Safeguards

In addition to the careful attention devoted to quality standards in the manufacture process of your video product, safety is a major factor in the design of every instrument. However, safety is your responsibility too. This sheet lists important information that will help to assure your enjoyment and proper use of the video product and accessory equipment. Please read them carefully before operating and using your video product.

Installation

1. **Read and Follow Instructions** - All the safety and operating instructions should be read before the video product is operated. Follow all operating instructions.
2. **Retain Instructions** - The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** - Comply with all warnings on the video product and in the operating instructions.
4. **Polarization** - Do not defeat the safety purpose of the polarized or grounding-type plug.
   - o A polarized plug has two blades with one wider than the other.
   - o A grounding type plug has two blades and a third grounding prong.
   - o The wide blade or the third prong is provided for your safety.
   - o If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet



5. **Power Sources** - This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your location, consult your video dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.
6. **Overloading** - Do not overload wall outlets of extension cords as this can result in the risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard. Periodically examine the cord, and if its appearance indicates damage or deteriorated insulation, have it replaced by your service technician.
7. **Power-Cord Protection** - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the video product.
8. **Ventilation** - Slots and openings in the case are provided for ventilation to ensure reliable operation of the video product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the video equipment on a bed, sofa, rug, or other similar surface. This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the video product manufacturer's instructions have been followed.
9. **Attachments** - Do not use attachments unless recommended by the video product manufacturer as they may cause a hazard.
10. **Water and Moisture** - Do not use this video product near water. For example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, near a swimming pool and the like.

    Caution: Maintain electrical safety. Power line operated equipment or accessories connected to this unit should bear the UL listing mark of CSA certification mark on the accessory itself and should not be modified so as to defeat the safety features. This will help avoid any potential hazard from electrical shock or fire. If in doubt, contact qualified service personnel.
11. **Accessories** - Do not place this video equipment on an unstable cart, stand, tripod, or table.
    The video equipment may fall, causing serious damage to the video product. Use this video product only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the video product.

    Any mounting of the product should follow the manufacturer's instructions and use a mounting accessory recommended by the manufacturer.

Service

13. **Servicing** - Do not attempt to service this video equipment yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
14. **Conditions Requiring Service** - Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions.
    - **A.** When the power supply cord or plug is damaged.
    - **B.** If liquid has been spilled or objects have fallen into the video product.
    - **C.** If the video product has been exposed to rain or water.
    - **D.** If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
    - **E.** If the video product has been dropped or the cabinet has been damaged.
    - **F.** When the video product exhibits a distinct change in performance. This indicates a need for service.
15. **Replacement Parts** - When replacement parts are required, have the service technician verify that the replacements used have the same safety characteristics as the original parts. Use of replacements specified by the video product manufacturer can prevent fire, electric shock or other hazards.
16. **Safety Check** - Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks recommended by the manufacturer to determine that the video product is in safe operating condition.
17. **Wall or Ceiling Mounting** - The cameras provided with this system should be mounted to a wall or ceiling only as instructed in this guide, using the provided mounting brackets.
18. **Heat** - The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Use

19. **Cleaning** - Unplug the video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
20. **Product and Cart Combination** - Video and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the video product and car combination to overturn
21. **Object and Liquid Entry** - Never push objects for any kind into this video product through openings as they may touch dangerous voltage points or “short-out” parts that could result in a fire or electric shock. Never spill liquid of any kind on the video product
22. **Lightning** - For added protection for this video product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video product due to lightning and power line surges. The manufacturer’s instructions and use a mounting accessory recommended by the manufacturer.

General Precautions

1. All warnings and instructions of this manual should be followed
2. Remove the plug from the outlet before cleaning. Do not use liquid aerosol detergents. Use a water dampened cloth for cleaning
3. Do not use this unit in humid or wet places
4. Keep enough space around the unit for ventilation. Slots and openings should not be blocked

FCC CLASS B NOTICE

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not in-stalled and used in accordance with the instruction, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the equipment on and off), the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio or television technician for assistance

This equipment has been certified and found to comply with the limits regulated by FCC, EMC, and LVD. Therefore, it is designated to provide reasonable protection against interference and will not cause interference with other appliance usage.

However, it is imperative that the user follows this manual' guidelines to avoid improper usage which may result in damage to the unit, electrical shock and fire hazard injury

In order to improve the feature functions and quality of this product, the specifications are subject to change without notice from time to time.

LOREX TECHNOLOGY INC.

http://www.lorexcctv.com

Features

- Digital Wireless Technology Provides Excellent Image Quality and Clarity
- Interference Free, secure and private signal.
- Up to 450ft Wireless Transmission Range*
- Listen in with Exceptional Sound Clarity
- Safety Warning Feature Notifies You When out of Range
- System expandable up to 4 Cameras**

* Maximum open space transmission range. The actual range is dependent upon building materials and other obstructions in path of wireless signal.
** Additional Cameras sold separately. Visit us on the web at http://www.lorexcctv.com for ordering details.

Receiver Features:

- 2.4" Color LCD Monitor/Receiver with Superior Image Quality
- Video/Audio Output for Viewing on TV/Monitor or Recording on VCR/DVD Recorder
- Rechargeable Lithium Polymer Battery for True Portability
- Convenient Receiver Cradle and belt clip included
- Audio Level indicator and Alarm

Camera Features:

- VGA Resolution Camera
- Night Vision allows for low light viewing up to 15 Feet / 4.5 meters***
- Built-in Microphone
- Camera can be battery operated for true portable wireless operation

***IR illumination range of 15ft. / 4.5m under ideal conditions. Objects at or beyond this range may be partially or completely obscured, depending on the camera application.

The Digital Wireless signal transmission type used by the Lorex LW2002 series is also known as **FHSS –Frequency Hopping Spread Spectrum**. This type of signal is highly resistant to deliberate jamming as it generates a channel hopping sequence using an algorithm generated by the receiver system.

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Getting Started

The System comes with the following components:

1 x WIRELESS RECEIVER

1 x RECEIVER CRADLE

1 x WIRELESS CAMERA(S)*

1 x POWER ADAPTOR (FOR RECEIVER)

1 x POWER ADAPTOR(S) (FOR CAMERA) *

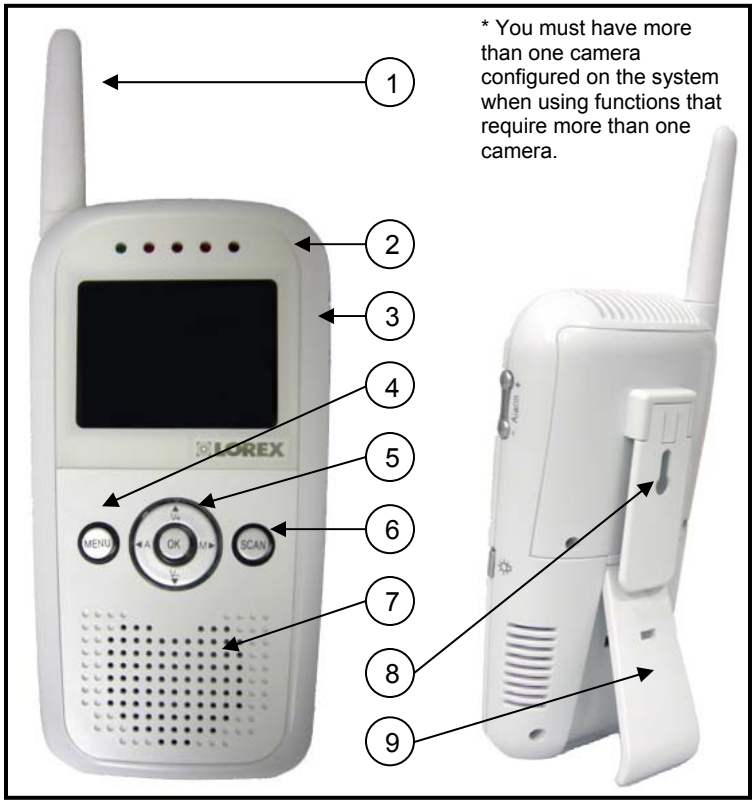
1 x RCA VIDEO CABLE

CHECK YOUR PACKAGE TO CONFIRM THAT YOU HAVE RECEIVED THE COMPLETE SYSTEM, INCLUDING ALL COMPONENTS SHOWN ABOVE.

*** 1 of each of the above is provided with the Camera. Please see your Product Package for the number of cameras included with your System.**

Wireless Receiver

Front Controls



1. **Receiver Antenna** – Receives & Sends signals to or from the Cameras*

2. **Power / Audio Level LEDs** – The Green LED indicates the Receiver Power is ON or OFF. The Red LED's indicate the Audio Levels (Low to High).

3. **LCD Screen –** Displays video from the Camera.

4. **MENU Button** – Press to Access the Receiver Menu. Press the button again to exit.

5. **Navigation Controls / OK Button** – Use the controls in Viewing Mode and Menu Modes:

- **Viewing Mode**: The following controls are used while watching live video from the camera:
  - Press the UP/DOWN ▲▼arrows to Increase or Decrease the volume.
  - Press the LEFT "◄A" arrow to view cameras* in automatic switching mode.
  - Press the RIGHT "M►" arrow to manually switch between cameras*.
- **Menu Mode**: Use the UP/DOWN/LEFT/RIGHT ▲▼◄► arrows to navigate in Menu Mode. Press the OK Button to confirm the menu selection.

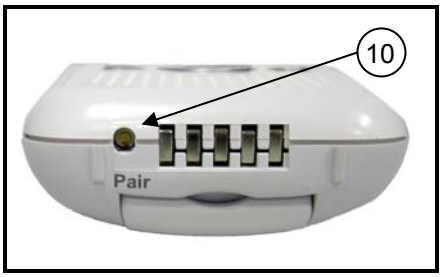
6. **SCAN Button** – When the Scan button is pressed, the LCD Screen is turned off and the system continuously scans all available cameras while the monitor is dark. The SCAN feature can be used for the following two reasons: (1) To prevent the user from being disturbed (i.e. when sleeping) by the bright LCD screen, or (2) To conserve battery power. If audio is detected above the preset audio trigger level on the Camera(s)*, the Receiver will beep and display the triggered Camera. The camera receiver will return to Scan mode several seconds after the Alarm has completed. Press the AUTO "◄A" or MANUAL "M►" button to exit Scanning Mode.

7. **Speaker** – Produces the sound transmitted from the Cameras*.

8. **Belt Clip / Wall Mount** – Use the belt clip to easily carry the Receiver with you. Use the Mount hole to hang the Receiver on a wall (using a screw – not included).

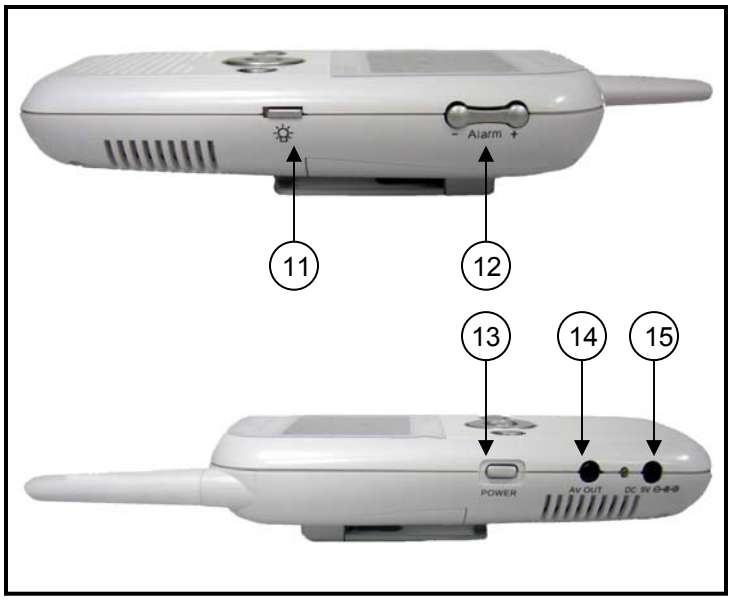
9. **Stand** – Flip the stand out to place the receiver on a flat surface (such as a table or countertop). Alternatively, place the receiver in the Receiver Cradle.

Bottom Control



10. **Pair Button** – Press the Pair button when Pairing the Receiver with a Camera.

Side Controls



11. **Night Light Button** – Press to remotely turn Night Light ON or OFF (for the camera currently being displayed on the LCD Screen).

12. **Alarm +/- Button** – Press to increase or decrease the sensitivity of the audio alarm.

13. **Power Button** – Press to turn the Receiver ON or OFF.

14. **A/V Out Port (Optional Use)** – Connect the included A/V Cable to view video from the receiver on a TV or Monitor, or record to a DVD Recorder or VCR. Alternatively, use the A/V Out port on the Receiver Cradle.

NOTE: **Using this feature will turn off the LCD screen. The LCD screen will turn back on when the A/V Cable is disconnected.**

15. **DC 9V Power Input** – Connect the included DC 9V Power Adaptor to power the receiver and/or charge the Receiver battery (when the receiver is not in the Cradle).

Receiver Cradle Inputs

16. **A/V Out Port** – Connect the included A/V Cable to view the receiver picture (when docked) on a TV or Monitor, or record to a DVD Recorder or VCR. (**NOTE: The power cable needs to be connected for this feature to work.** Only one A/V out port should be used at a time).

17. **DC 9V Power Input** – Connect the DC 9V Power Adaptor (included) to the Receiver Cradle to power the receiver and/or charge the Receiver (when docked).

NOTE: **When the Receiver is docked, and the A/V Cable is connected (power cable as needs to be connected), the LCD Screen on the receiver will be blacked out. The LCD screen will turn back on when the A/V Cable is disconnected.**

Wireless Receiver Installation

Determine if you will be using the Receiver Cradle, or connecting the cables directly to the receiver before installation:

1. Place the Receiver Cradle or Receiver in a place that will have clear reception with your camera(s).
2. Plug the AC adaptor power output cable into the 9V POWER input of the Cradle or Receiver. Plug the power plug into a wall outlet or surge protector.
3. Leave the receiver to charge for **6 hours** prior to first time use so the built-in rechargeable receiver battery is fully charged. **DO NOT** remove the power cable from the receiver / from the cradle during initial charging process. After initial charge, charge as required.
4. If you wish to view the Receiver images on a larger screen, connect the included AV Cable to the Cradle or Receiver, and connect the other end of the Cable to the Video IN (Yellow) and Audio IN (White) ports on the TV, VCR or other viewing/recording device. **NOTE: the purpose of the AV output is for convenience only. When using with large screen TV/Monitor, the picture might be grainy as the camera limits video resolution to VGA (640x480 pixels). This is not a product defect.** For best performance use with TV/Monitor PIP (Picture in Picture) function. Check your TV/Monitor product manual to see if this feature is available on your TV/Monitor. This allows you to view TV or other video source and see video from the camera in a small window on the same screen.

Camera

Front & Back

1. **Camera Antenna** – Receives & Sends signals to or from the Receiver

2. **Night Light Switch** – Press to turn the Light ON or OFF. Alternatively, press the Light button on the Receiver to remotely turn the Camera Light ON or OFF.

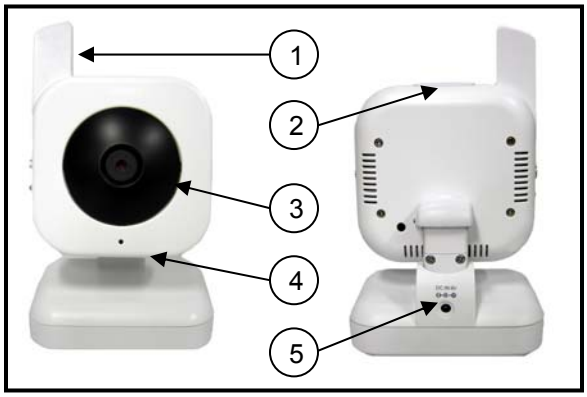
3. **Lens / IR LED Cover** – Infrared LEDs provide viewing in no/low light conditions.

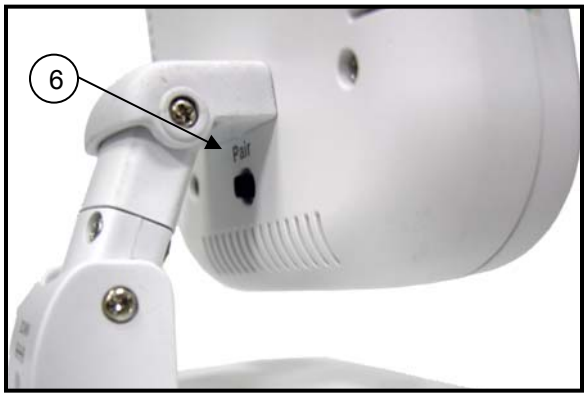
4. **Microphone** – Receives sounds for the area near the camera, and transmits sound from the Camera to the Receiver.

5. **DC 9V Power** – Connect the DC 9V Power Adaptor to the Camera.

NOTE: The Camera can also be powered using 4 AA Batteries (not included) installed in the base. If the Camera is plugged in with the AC Adaptor, the batteries will not be used. The batteries are intended for short term, portable Camera use.

6. **PAIR Button** – The pairing button is located on the back of the camera behind the stand mount.

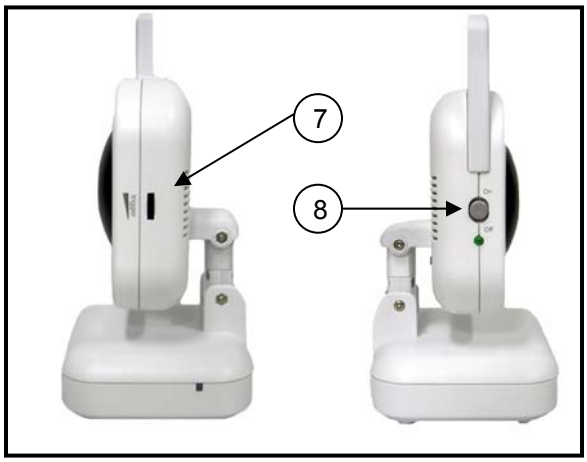




Side Controls

7. **Sound Alarm Trigger** – Adjust the Trigger to set the Sound Alarm sensitivity. The Receiver will beep to alert the user when the sound is above a preset sound level. Adjust the side wheel to Increase or Decrease the level.

8. **Camera ON/OFF Switch** – Turns the Camera ON or OFF.



Camera Installation

Before you install the camera, carefully plan where and how it will be positioned, and where you will route the cable that connects the camera to the power adaptor.

- Before starting permanent installation, verify its performance by observing the image on the receiver when camera is positioned in the same location/position where it will be permanently installed and the receiver is placed in the location where it will be used most of the time.

Installation Warnings:

- Aim the Camera(s) to best optimize the viewing area: Select a location for the camera that provides a clear view of the area you want to monitor, which is free from dust, and is not in line-of-sight to a strong light source or direct sunlight.
- Avoid installing the cameras where there are thick walls, or obstructions between the Cameras and the Receiver.

Night Vision

This camera has built-in IR LEDs, which provides the camera with the ability to view images in no/low light conditions. It is important to use the provided power adaptor (and not the Batteries) when using the camera for prolonged periods in low light conditions, as the built-in IR LEDs will drain the battery more quickly than regular daytime use.

Installing the Camera:

1. Carefully unpack the Camera.

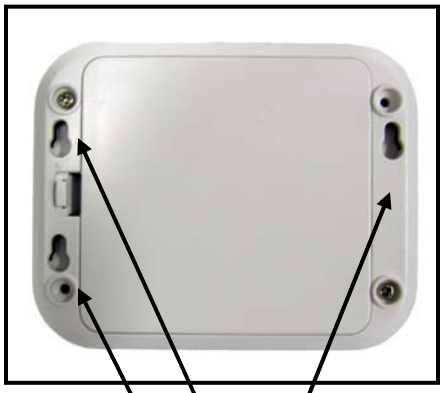
NOTE: If you are installing Cameras that did not come with the System, please see the Pairing Camera section of this manual for details on installation.

2. Mount the camera to the wall:
   - Mark the position of the screw holes on the wall.
   - Drill holes and insert 3 screws.
   - Firmly attach the camera to the wall by placing the stand over the installed screws and pushing the base downwards to secure.

NOTE: The camera can also be placed on a flat surface, such as a Table or Shelf, and no mounting hardware is required.

3. Adjust the Viewing angle of the Camera.

NOTE: You can install additional cameras (maximum of 4 cameras).When adding cameras that were not included in the original box; you will need to pair up the cameras with the receiver. Refer to the camera pairing section of this manual.



Position the Base holes over the screws. Slide the base down to lock the base in place.

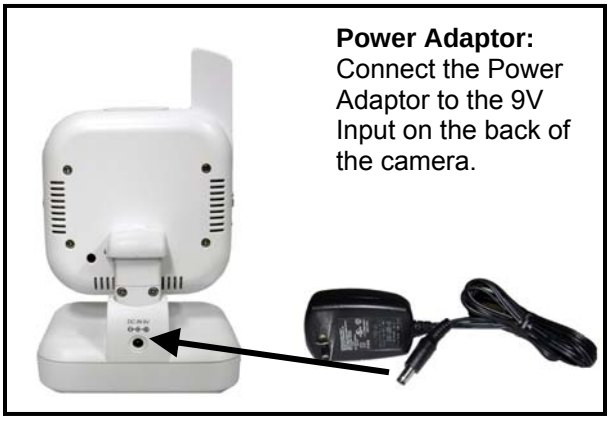
Connecting Camera Power

The Camera can be powered either by using the provided Power Adaptor, or using Batteries (requires 4 x 'AA' type batteries, not included).

NOTE: Wireless cameras require a power source (either an electrical outlet or battery power) to operate. If you plan to permanently mount the camera in a location, it is recommended to use the included Camera Power adaptor to prevent interruptions in the image, as using battery power is intended as a temporary power solution.

POWER ADAPTOR:

Connect the Power Adaptor to the Camera. Make sure the power adaptor is placed into a grounded outlet or surge bar to protect the camera from power fluctuations.



Power Adaptor: Connect the Power Adaptor to the 9V Input on the back of the camera.

BATTERY PACK:

1. Remove the Battery Cover off the base of the Camera.

2. Insert 4 x AA Batteries (not included) into the Battery Pack. Make sure to correctly line up the Positive (+) and Negative (-) terminals of the batteries.

Place the Battery Pack cover back on.

NOTE: If the Camera is plugged in with the AC Adaptor, the batteries will not be used. The batteries are intended for short term, portable Camera use only.

Camera Positioning

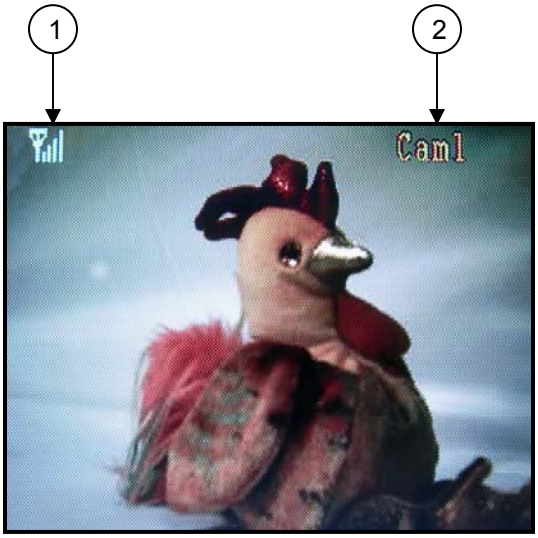
The Camera can be placed on a flat surface, or wall mounted. The versatile stand allows for several different mounting options.

Viewing Mode

1. **SIGNAL INDICATOR** – The signal indicator shows the strength of the signal being received from the camera. The number of bars in the Signal Indicator shows the strength of the signal – One or No Bars indicates the signal is poor, and 4 bars indicate a very strong signal.

Signal Indicators:

Signal Strength	Indicator	Warning
Perfect		None
Good		None
Fair		Low Signal
Low		Low Signal
No Signal		No Signal



2. **CHANNEL INDICATOR** – Displays the current channel number. Press the Right "M►" Button on the Receiver to switch between available cameras.

NOTE: To automatically switch between channels, press the Left "◄A" Button (AUTO).

Low Signal / No Signal Warnings

When the Camera is positioned too far from the Receiver, warning messages will be displayed:

LOW SIGNAL: The “Low Signal” signal appears when the receiver has One or Two bars. You will still get an image, however updating may be less frequent.

NO SIGNAL: The “No Signal” message means the receiver cannot access the camera. Please reposition the camera, or check the Camera power.

Adjusting the Receiver Volume

The Receiver Volume can be adjusted using the UP and DOWN ▲▼ arrow buttons when viewing a camera.

Press the DOWN▼ Arrow to decrease the Volume, and press the UP▲ Arrow to increase the volume. When the volume is set to one bar (lowest setting), the volume is muted.

The Volume Adjustment icon will be displayed during Volume changes, and will disappear after 10 seconds of inactivity.

Accessing Menu System

Press the MENU Button on the Receiver to enter MENU System. Use the ▲▼◄► Buttons to navigate UP, Down, Left or Right in the menu, and press the OK Button to confirm a setting.

Main Menu

The Main Menu contains 4 submenus:

1. **PAIRING** – Use the Pairing menu to add camera(s) to the receiver.

2. **EV** – Adjusts the Brightness level of the Receiver LCD Screen.

3. **POWER SAVING** – Turns on the Receiver Power Save mode (when no activity on the cameras is detected).

4. **SETTING** – Sets the AV Out options, and resets the Receiver to Factory Defaults (erases all configurations).

Pairing Menu

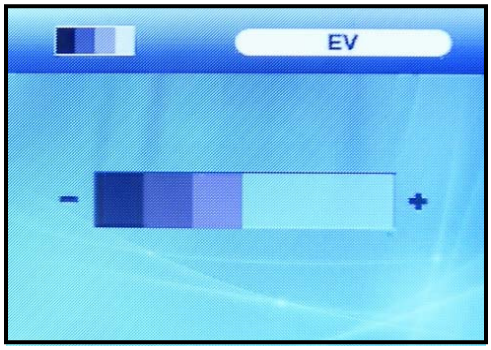
The System comes with camera(s) that have already been paired. The Pairing Function assigns each Camera to a different channel on the Wireless Receiver (up to 4 Cameras), and is necessary for configuring additional cameras.

Use the ▲◄►▼ keys to navigate. Select the desired Pairing channel, and press the OK Button to begin the Pairing Process with a camera.

NOTE: It is highly recommended to pair the Cameras to the Receiver before permanently mounting the Cameras. See the Pairing Section of this manual for details.

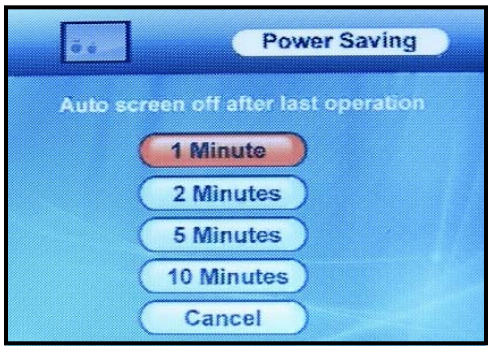
EV Menu

The EV Menu is used to adjust the Exposure of the Camera. Use the LEFT and RIGHT ◄► arrows to change the bar from DARKEST (left) to LIGHTEST (right). Press the OK Button to accept the change.



Power Saving Menu

The Power Saving Menu is used to turn off the screen at a predetermined time, when there is no camera detected or connected to the Receiver. This function can be set to 1 minute, 2 minutes, 5 minutes, 10 minutes, or disabled by selecting Cancel.

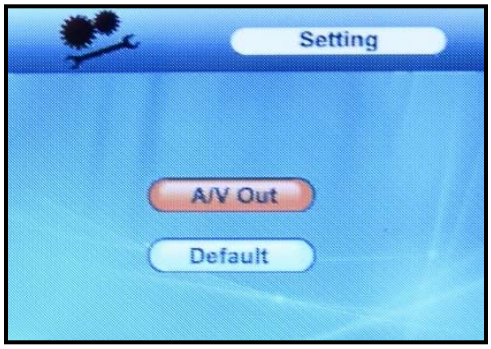


Setting Menu

The Setting Menu contains 2 submenus:

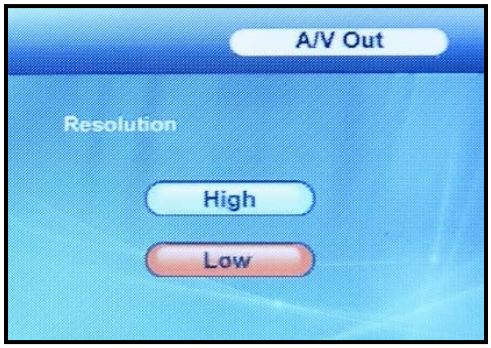
1. **A/V Out** – Changes the quality of the image sent to the A/V receiving device (i.e. TV or Monitor).

2. **Default** – Resets all menu settings to Factory Default.
NOTE: Resetting the receiver will not reset all Camera Pairing.



A/V Out Menu

The A/V Out menu option is used to adjust the Resolution Quality of the image sent to the Viewing Device (such as a TV, VCR or Monitor). Use the UP and DOWN ▲▼ arrows to select a Resolution, and press OK to accept.
It is strongly recommended to use the “High” setting to ensure the best image reproduction on large screens – the default setting is “High”.



Setting Menu

The Setting option is used to reset the Receiver to Factory Defaults – all menu settings will be reset. Use the UP and DOWN ▲▼ arrows to select YES, and press OK to accept.

NOTE: Camera pairing settings will NOT be affected by a reset. Cameras will remain paired with the Receiver.

Camera Pairing

The System comes with camera(s) that have already been paired. These cameras will communicate with the receiver once powered on.

The Pairing Function assigns each Camera to a different channel on the Wireless Receiver (up to 4 Cameras), and is necessary for configuring additional cameras.

NOTE: It is highly recommended to pair the Cameras to the Receiver before permanently mounting the Cameras.

1. Power on the Camera by connecting the Power Adaptor or Battery Pack, and turning the switch to ON. The power LED for the Camera should be ON.

2. Power on the Receiver by connecting the power adaptor to the 9V Input on the side.

3. Press the MENU button on the Receiver. Navigate to the PAIRING Menu option by pressing using the ▲▼◄► keys to navigate. Press the OK button to open the Pairing Menu.

4. Select a channel by pressing the UP and DOWN ▲▼ arrows. Press the OK Button on the receiver to accept.

5. Press the PAIR button located on the bottom of the Receiver using a pen tip or paperclip.

6. A message will be displayed on the Receiver screen.

The Receiver will count down from 10~0 – you must press the PAIR button on the Camera during this time to successfully pair the Camera.

If the button on the Camera is not pressed, the Receiver will return to the view screen, and no pairing will take place.

7. Press the PAIR button on the back of the Camera.

Once the camera has been paired, it will be immediately viewable on the Receiver Monitor.

Troubleshooting

If you have problems with your System, there is often a quick and simple solution. Please try the following:

Problem	Solution
There is no picture from a Camera.	• Check all connections to the Camera. Make sure the adaptor is plugged in. • Make sure that the Cameras and Receiver are both ON. • Make sure that the camera is in range of the Receiver. • If using the battery adaptor, try replacing the Batteries
The picture is dropping	• Move the camera closer to the receiver. • Try repositioning the camera, receiver or both to improve the reception.
There are problems with the Audio.	• Ensure that the volume on the TV is ON • Make sure that there is sound within range of the Camera Microphone • If the unit emits a loud screeching noise (feedback), move the camera or receiver farther apart.
The Picture is or has become Choppy	• The picture may become choppy when experiencing a lower frame rate (i.e. 10 frames per second vs. a higher 20 frames per second). • Try moving the camera closer to the receiver. • Remove obstructions between the Receiver and Camera.
The Picture appears to be grainy when using AV out function to view on a large screen TV/Monitor	• the purpose of the AV output is for convenience only. When using with large screen TV/Monitor, the picture might be grainy as the camera limits video resolution to VGA (640x480 pixels). This is not a product defect. • For best performance use with TV/Monitor PIP (Picture in Picture) function. Check your TV/Monitor product manual to see if this feature is available on your TV/Monitor • View video on a smaller screen TV/Monitor

Appendix #1 - Receiver Specifications

Receiver	
Receiving Frequency Range	2.400GHz~2.482GHz
Data Rate	1.5 Mbps
Receiving Sensitivity	-81dBm
Demodulation Type	GFSK with FHSS
Resolution	H: 480 V: 240
Viewing Angle	H: 50° V: 50°
A/V Output / Resolution	VGA 640x320 / 15FPS, QVGA 320x240 / 30FPS
Alarm Sensitivity	80dB ±10% (1M)
Power Requirement	9V DC ±5%
Power Consumption	400mA Max without charging, 800mA with charging
Operating Temp Range	14°F ~ 140°F -10° ~ 60° C
Operating Humidity	10% ~ 85% RH

Appendix #2 - Camera Specifications

Camera(s)	
Transmit Frequency Range	2.400GHz~2.485GHz
Data Rate	1.5 Mbps
Transmitting Power	14dBm (TYP)
Modulation Type	GFSK with FHSS
Transmitting Distance	150m (Line of Sight)
Image Sensor Type	¼" Color CMOS Image Sensor
Effective Pixels	H: 640 V: 480
Image Processing	Motion JPEG
Image Resolution / Frame Rate	H: 640 V: 480 / 30FPS Max.
AES	On 1/2000 ~ 1/20 sec
White Balance	Yes
AGC / Range	On / 0dB~24dB
Lens	4.9mm / F2.8
Viewing Angle (Diagonal)	60°
Minimum Illumination	2.5 LUX (IR Off), 0 LUX (IR On)
IR LED / Night Vision Range	8 LEDs / 840nm 5m (with IR LED)
Power Requirement	9V DC ±5%
Power Consumption	360mA MAX (with Night Light), 300mA (without Night Light)
Operating Temperature	14°F ~ 104°F -10°C ~ 40°C
Operating Humidity	0% ~ 85%
Environmental Rating	14°F ~ 140°F -10° ~ 60° C
Dimensions (W x D x H)	2.6" x 5.7" x 3.3" 66mm x 145mm x 84mm

Appendix #3 – About Digital Wireless Technology

The Digital Wireless signal transmission type used by the Lorex 2002W series is also known as **FHSS – Frequency Hopping Spread Spectrum**. This type of signal is highly resistant to deliberate jamming as it generates a channel hopping sequence using an algorithm generated by the receiver system.

The 2.4GHz (2.400-2.483Ghz) band is being divided into sections or paths of 2MHz per section, and each second the transmission signal hops hundreds of times in a specified sequence within this frequency range. The overall bandwidth required for frequency hopping is much wider then 2MHz however because transmission occurs only on a small section of this bandwidth at any given time, the signal being transmitted does not suffer from greatly reduced signal degradation and also avoids blocked paths other devices who act as sources of competing signals. The strength of the signal being transmitted is set to be from 13.5-16dBm, which is much higher then the analog transmission signal allowed by authorities around the Globe.

When an image is captured by the camera it is instantly converted from an analog to digital signal and packaged into small packets. With each successful transmission via the 2Mhz paths discussed above, the packets of information containing images are delivered to the receiver and decoded into analog information. The information can then be displayed on devices that are connected to the wireless receiver (RX).

A device pairing process is required to synchronize the transmitter (TX, Camera) and the receiver (RX). This allows the transmitter and receiver to be on the same frequency and use the same algorithm for frequency hopping. This ensures that only the paired transmitter and receiver can maintain communication signal by hopping to the same frequency paths at the exact same time. As a result, the chance that other devices within the same frequency range are on the same frequency, at the same time and in the same order is extremely unlikely. Note that the pairing process is already done at the factory for products that ship within the same packaging. Only when add-on devices are purchased is a pairing process required.